

Guidelines

Guidelines

for Financial and Economic Evaluation
of New Water Infrastructure
in Queensland

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Queensland
Government

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**Queensland
Government**
Treasury

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Executive Summary

Water is one of Queensland's most valuable natural resources and must be carefully managed if future generations are to benefit from its use. For this reason, the Queensland Government is committed to developing an economically viable and ecologically sustainable water industry in Queensland. The Queensland Government has developed a new framework for the planning, allocation and management of water in Queensland, now embodied in the *Water Act 2000*.

In the new water industry environment, the Queensland Government will have an increased focus on strategic water resource planning aimed at:

- ensuring that the use of the natural resource is ecologically sustainable;
- promoting cost-effective infrastructure and service delivery and efficient water use;
- supporting and promoting economic and social development opportunities; and
- protecting the State's investments in infrastructure assets.

Within this new water industry framework, these guidelines, *Financial and Economic Evaluation of New Water Infrastructure in Queensland*, outline the rationale and processes for financial and economic analysis of investment in new water infrastructure.

Specifically, these guidelines indicate that new water infrastructure investments should only proceed where they can be demonstrated to be economically viable and ecologically sustainable.

In all instances, any consideration of funding arrangements would need to be consistent with these guidelines and *Community Service Obligations: A Policy Framework (March 1999)* and a clearly stated objective of the Queensland Government. Only in exceptional circumstances will community service obligation (CSO) payments be considered where water prices are unable to at least cover the costs necessary to assure the ongoing financial viability of a new water infrastructure investment.

These guidelines have been developed specifically for the water industry but complement the more general guidelines and policy statements:

- *Project Evaluation Guidelines (1997)*;
- *Community Service Obligations: A Policy Framework (1999)*; and
- *Private Sector Involvement in Public Infrastructure and Service Delivery (1997)*.

The focus of *Financial and Economic Evaluation of New Water Infrastructure in Queensland* is primarily on the requirements for the financial and economic evaluation of water infrastructure projects rather than provide a detailed discourse on evaluation techniques, such as cost benefit analysis, for which there is already a wide range of literature available.

Similarly, *Financial and Economic Evaluation of New Water Infrastructure in Queensland* does not discuss the environmental management or resource management requirements that would also need to be met before a water infrastructure project was given approval to proceed. A project would need to demonstrate environmental sustainability as a separate prerequisite for project approval.

These guidelines apply to Queensland Government Departments, statutory authorities and commercialised business units that are contemplating investments in water infrastructure. The guidelines are also applicable to a Government Owned Corporation (GOC) or a private sector entity where a request is made to the Queensland Government for funding or where the Queensland Government is requested to assume some level of project risk.

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Introduction

1. Introduction

1.1 The changing nature of the water industry in Queensland

Water is one of Queensland's most valuable natural resources and must be carefully managed if future generations are to benefit from its use. For this reason, the Queensland Government is committed to developing an economically viable and ecologically sustainable water industry in Queensland. The Queensland Government has developed a new framework for the planning, allocation and management of water in Queensland.

Historically, Governments have planned, developed and managed most water supply infrastructure. The primary reasons for significant Government involvement included:

- the need to promote regional and rural development and encourage decentralisation;
- the natural monopoly characteristics of bulk water supply; and
- a traditional view that water is a public commodity and Government is responsible to provide public infrastructure for its supply.

However, increasing pressure on Government to improve service delivery while containing or reducing the costs of infrastructure provision has encouraged the Queensland Government to seek better ways to deliver water services. Most recently, the nature of the water industry in Queensland has changed with an increasing number of Government owned water service providers being commercialised and corporatised and the emergence of a number of private sector providers.

To support the changing nature of the water industry, the Queensland Government has enacted the *Water Act 2000*. A major component of the new *Water Act 2000* is a new legislative framework for the management, planning and allocation of water resources in Queensland.

Under the new *Water Act 2000* Water Resource Plans¹ (WRP) will be progressively completed for water catchments throughout Queensland. WRPs will be designed to:

- protect river health and aquatic habitats by identifying environmental flow needs;
- specify existing water entitlements and assess the capacity of the water resource to support these entitlements;
- identify any further allocations which may become available without compromising environmental needs or without adversely affecting existing water users;
- involve the community and industry in determining water management strategies and in identifying an appropriate balance between environmental and consumptive needs; and
- identify catchment-wide monitoring and reporting requirements.

A central feature of the WRP process is the use of a basin-wide hydrological model to simulate river flows and possible water usage across a catchment – given the current infrastructure, allocations and historical rainfall. The model can be used to assess the volumes of water available for allocation, and the impact of future allocations or management regimes on water supplies and environmental flows.

¹ The generic term used under the *Water Act 2000* to describe *Water Allocation and Management Plans (WAMPs)* and the smaller *Water Management Plans*

Following the completion of a WRP, Resource Operations Plans (ROP) will be developed for a catchment. ROPs will, amongst other things, outline processes for dealing with unallocated water identified by the WRP. It is envisaged that the development of the ROP will take account of the following:

- projected water needs and/or priorities for environmental, urban, industrial and rural priorities;
- strategies, including any development proposals, for meeting those water needs or priorities when there is a shortfall between water supply and water requirements; and
- strategies for the future allocation of water, taking into account the effectiveness of the market in water to meet expected needs.

ROPs should provide water users and potential entrants to the water industry with a degree of certainty regarding the availability of water and strategies and priorities for release of additional water allocations.

1.2 Purpose of the guidelines

Consistent with the new water industry environment, the Queensland Government will have an increased focus on strategic water resource planning aimed at:

- ensuring that the use of the natural resource is ecologically sustainable;
- promoting cost-effective infrastructure and service delivery and efficient water use;
- supporting and promoting economic and social development opportunities; and
- protecting the State's investments in infrastructure assets.

The purpose of these guidelines is specifically to outline the rationale and processes for financial and economic analysis of investment in new water infrastructure where a WRP has identified that further allocations are available for development.

These guidelines have been developed specifically for the water industry but complement the more general guidelines:

- *Project Evaluation Guidelines (1997)*;
- *Community Service Obligations: A Policy Framework (1999)*; and
- *Private Sector Involvement in Public Infrastructure and Service Delivery (1997)*.

These guidelines focus primarily on the requirements for the financial and economic evaluation of water projects rather than provide a detailed discourse on evaluation techniques, such as cost benefit analysis, for which there is already a wide range of literature available.

Similarly, *Financial and Economic Evaluation of New Water Infrastructure in Queensland* does not discuss the environmental management or resource management requirements that would also need to be made, and later met, before a water infrastructure project was given approval to proceed. A project would need to demonstrate environmental sustainability as a separate prerequisite for project approval.

Application

2. Application of the guidelines

These guidelines require that new water infrastructure investments be subject to both financial and economic evaluation. Financial evaluation requirements are outlined in Section 5 (*page 16*) and economic evaluation requirements are outlined in Section 6 (*page 18*).

2.1 Application to Government bodies

These guidelines apply to Queensland Government Departments, statutory authorities and commercialised business units that are contemplating investments in water infrastructure.

These entities must comply with the *Financial Management Standard (1997)* for asset management. The *Financial Management Standard* requires that all capital projects, including fixed capital expenditure, plant and equipment and capital grants and subsidies, should be subject to evaluation, commensurate with the level of investment, to provide the necessary information for decision-makers.

Table 1: Application of guidelines to Government bodies

Type of Body	Application of Guidelines	
	Financial Evaluation	Economic Evaluation
Statutory Authorities	Yes*	Yes**
Commercialised Business Units	Yes*	Yes**
Departments	Yes	Yes

* Commercialised bodies may use their own financial investment guidelines where endorsed by the relevant portfolio Minister and the Treasurer.

** Economic evaluation to be completed by the Queensland Government.

2.2 Application to GOCs and the private sector

Except in certain circumstances these guidelines do not apply to GOCs or the private sector. It is expected that GOCs and private sector firms will pursue commercial opportunities for water infrastructure development consistent with their own commercial objectives² and consistent with Queensland Government legislation.

However, elements of these guidelines will apply to GOCs or the private sector to the extent that:

1. it is proposed that there be some form of Queensland Government financial involvement in a new water infrastructure investment, including risk held by the Queensland Government (excluding CSOs); or
2. the Queensland Government is providing a CSO for the provision of water services under *Community Service Obligations: A Policy Framework (March 1999)*; or
3. the Government is issuing a strategically significant water allocation or a licence for a strategically significant storage site³.

The applicability of these guidelines to GOCs and the private sector is outlined in Table 2 (below).

Table 2: Application of guidelines to GOCs and private sector

Development Proponent	Government Funding Sought?	Application of guidelines	
		Financial Evaluation	Economic Evaluation*
Private firm	No	No**	Yes if a strategically significant water allocation and/or a strategically significant storage site
	Yes	No, but private firm would need to submit financial information to Government for audit/assessment	Yes
GOC	No	No [#]	Yes if a strategically significant water allocation and/or a strategically significant storage site
	Yes	No, but GOC would need to submit financial information to Government for audit/assessment [#]	Yes

* The economic evaluation may be completed by the Queensland Government or by the project proponent as part of its IAS. Any economic evaluations by completed by project proponents should have regard to the principles outlined in these guidelines and will need to audited and approved by Government.

** Other than a prudential check as part of tender selection process or, if an exclusive mandate is considered, where a strategically significant water allocation and/or storage site is involved.

Shareholding Ministers would be required to endorse the project prior to it proceeding.

² New investments by GOCs above investment thresholds require the approval of shareholding Ministers.

³ A water allocation which is significantly large compared to the water available for allocation in a catchment, or the development of the allocation will have a significant impact on the State or region (an indication of this will come from the Water Resource Plan); or development of the water allocation will require a significant financial investment on the part of a project developer.

2.3 Application to Local Governments

It is expected that local governments would already have in place their own guidelines for financial and economic evaluation of new investments in water infrastructure so these guidelines do not generally apply to local governments.

However, the Queensland Government would have regard to the guidelines for new water infrastructure developed by local governments if infrastructure is being developed for a combination of urban water supply and non-urban water supply **and**

1. a local government seeks financial involvement from the Queensland Government (including risk held by the Queensland Government) for the component of the new water infrastructure investment to supply non-urban development; or
2. the Government is issuing a strategically significant water allocation⁴ and/or storage site for the local government development.

⁴ A water allocation which is significantly large compared to the water available for allocation in a catchment, or the development of the allocation will have a significant impact on the State or region; or development of the water allocation will require a significant financial investment on the part of a project developer.

Assessment

3. Assessment of water infrastructure investments

Water infrastructure investments must be subjected to comprehensive impact assessment studies prior to being considered for development approval by Government.

Under the *Water Act 2000*, new water infrastructure developments will only be able to proceed if a bulk water entitlement and Resource Operating Licence can be obtained from the resource regulator. The processes for issuing bulk water entitlements will vary and be situation specific. For a water infrastructure development to proceed, it will be necessary for the proposed development to be consistent with a Water Resource Plan that identifies that an appropriate quantity of “spare water” is available⁵.

In general, there are likely to be two main avenues for bulk water to be allocated, these being:

- the Government chooses to progress a water development with a bulk water entitlement; or
- application by a prospective water service provider for an entitlement to support a potential development.

In both instances, the Government will need to arrange appropriate competitive processes for rights to prepare, and ultimately implement, a development proposal that has a bulk water entitlement attached. These competitive processes would only be entered into after the preliminary assessments have been done

to establish that the potential development is likely to be technically, environmentally, financially and ecologically feasible. These assessments will also ensure that the proposed development does not preclude a more advantageous use of the water resource or development site at a later date.

Prior to Government approval for major water infrastructure projects, an Impact Assessment Statement (IAS) must be completed. The IAS, which takes account of, amongst other things, environmental, economic, cultural and social impacts must be prepared in accordance with the information requirements and administrative provisions of relevant Queensland and, where applicable, Commonwealth legislation, including:

- *State Development and Public Works Organisation Act 1971*;
- *Water Resources Act 1989 and successive legislation*;
- *Environmental Protection and Biodiversity Conservation Act 1999 (Comm)*;
- *Environmental Protection Act 1994*;
- *Integrated Planning Act 1997*; and
- *Financial Administration and Audit Act 1977* and *Financial Management Standard 1997*.

Commercial providers would separately carry out their own financial assessment of a proposed development.

⁵ DNR is developing Water Resource Plans that will cover the majority of Queensland. Where development is being considered in an area where there is no WRP, the Queensland Government may consider the allocation of a water entitlement depending on factors such as:

- (i) the economic and social benefits of the proposed works and any industry to be supplied with the water;
- (ii) the proponent’s compliance with the need for sustainable management and efficient use of water specified in the *Water Act 2000*;
- (iii) consistency with the principles of ecologically sustainable development under the *Water Act 2000*;
- (iv) available water planning information; and
- (v) impacts on water entitlement holders under the *Water Act 2000*.

3.1 Financial and economic assessment

The purpose of *Financial and Economic Evaluation of New Water Infrastructure in Queensland* is to provide a framework for the financial and economic assessment component of new water infrastructure investments in Queensland (including extensions to existing water infrastructure).

Importantly, *Financial and Economic Evaluation of New Water Infrastructure in Queensland* requires that both a financial and economic assessment be completed for water investment projects so that not only is the economic viability of the project established, but an estimate of the expected cost recovery of the project is also ascertained. Only in limited circumstances would an economic assessment not be required (eg. a small stand alone project which is financially viable).

Accordingly *Financial and Economic Evaluation of New Water Infrastructure in Queensland* has a strong emphasis on the financial assessment that should be completed where new water infrastructure is being assessed, particularly in the context of considering water pricing and cost recovery for new projects.

From an economic and social perspective *Financial and Economic Evaluation of New Water Infrastructure in Queensland* also describes the link between financial and economic analyses and the provision of community service obligations through water infrastructure investment.

3.2 The difference between financial and economic assessment

Financial assessment is used to determine the commercial viability (profitability) of a project from a developer's perspective whereas economic assessment determines the net benefits of a project to the economy and society as a whole. Both assessments are based on discounted cash flows although they take account of different cost/benefit streams and use different discount rates.

Financial assessment considers whether the projected revenues will be sufficient to cover expenditures and whether the financial return is sufficient to make the project commercially viable (profitable). It is the financial assessment that demonstrates whether a project meets a commercial 'hurdle' rate for the investment of whether there is a need for Government to provide CSO funding to allow a development to proceed.

Economic assessment, on the other hand, assesses the broader community benefits and costs of the project to determine whether, overall, society will be better or worse off as a result of the development. In addition to the cash benefits and costs for water users and associated beneficiaries, economic assessments may include actual or imputed benefits and costs of externalities such as biodiversity, salinity, acidity etc as well as recreation and tourism, flood mitigation.

Economic assessments are based on the expected life of a development whereas a financial assessment will generally use a time period that reflects the planning horizon of the developer.

Clearly, the purpose and objectives of financial and economic analysis are quite different so it will not always be the case that a project that is financially viable will be economically viable or a project that is economically viable will be financially viable.

A comparison between the revenues/benefits and costs captured in a financial and economic assessment of a water infrastructure project is outlined in the Table 3 (page 11).

Table 3: Comparison of financial and economic costs and benefits

Financial		Economic	
Revenues	Costs	Benefits	Costs
<p>Direct income stream from project eg. revenue from water allocation sales⁶, annual water sales.</p> <p>CSOs should be considered after the preliminary financial assessment. Where the Queensland Government agrees to a specified CSO after determining the economic viability of the project, the revenue from the CSO would then be included transparently in the financial assessment.</p>	<p>Capital costs of the project including financing costs</p> <p>Project operating, maintenance, administration and refurbishment costs (including overheads)</p> <p>Taxation costs</p> <p>Regulatory, licencing and compliance costs (eg. costs of compliance with Environmental Management Plans, River Operations Licences etc).</p>	<p>Direct benefits such as increase in economic income directly ascribed to project eg. increases in income from irrigation and primary processing etc.</p> <p>Other direct benefits such as flood mitigation, tourism and recreation</p> <p>Indirect benefits (excluding transfer impacts eg. increases in employment on the project)</p> <p>Environmental impacts (to the extent that a monetary value can be approximated)</p>	<p>Capital costs of project plus capital costs of other direct beneficiaries</p> <p>Project operating, maintenance, administration and refurbishment costs, regulatory, licencing and compliance costs</p> <p>Increase in operating costs of irrigators and primary processors (excluding water prices)⁷</p> <p>Loss of economic income from “without case”</p> <p>Indirect costs of the project (excluding distributional or transfer impacts)</p> <p>Environmental impacts (to the extent that a monetary value can be approximated)</p>

A financial evaluation considers only those revenues and costs that are directly attributable to a project developer, therefore, unless costs that come through externalities can be quantified and charged to the project developer it is possible to have a project that is financially viable but not economically viable. For example, a project may be financially viable, but the economic assessment shows that the project will cause major salinity problems with a high cost both in terms of loss of productive land and/or remedying the situation, so that the project is not economically viable.

Alternatively an economic evaluation may show a project to be economically viable, however, a project developer may be unable to capture a sufficient amount of benefits from primary

beneficiaries via charges to make the project commercially viable. The willingness and capacity of water users to pay charges levied by a developer will be influenced by the magnitude of their economic benefit, their required return from entrepreneurship, taxation, the private cost of borrowings and their length of planning horizon. In some situations, some primary beneficiaries (such as processing plants) may not be water users and the project developer may be unable to levy charges to capture part of their economic benefits.

Where projects are assessed as being economically viable, but not commercially viable, there may be a case for the Government to provide a CSO (see Section 8 – page 22).

⁶ This will require detailed analysis of the willingness and capacity to pay for water

⁷ Inclusion of water prices in the economic assessment would be “double counting” the costs of water provision.

3.3 Environmental assessment

Financial and Economic Evaluation of New Water Infrastructure in Queensland does not cover the environmental analysis required for all capital projects under the *Environmental Protection Act 1994* or other relevant legislation. It is a prerequisite for development approval that a project is demonstrated to be ecologically sustainable. If a project is not demonstrated to be ecologically sustainable, then the project should not proceed.

Environmental assessment should consider:

- the extent and nature of both on-site and off-site environmental consequences;
- the short and long-term environmental effects from the project;
- opportunities to improve environmental benefits from the project (eg. through the incorporation of conservation initiatives); and
- whether environmental considerations associated with the project are likely to be of a significant community concern.

From a financial and economic evaluation perspective, environmental implications of projects should be considered in the following manner:

- financial assessment should include the direct costs to the commercial provider of complying with environmental and resource management requirements during the development of the project and for the life of the infrastructure investment;
- economic assessment should, to the extent possible, quantify the environmental costs and benefits of the proposed project (see Section 6 – page 18).

3.4 Social assessment

Regional impacts such as flow-on employment and investment effects (economic multiplier effects) are not included as part of the financial or economic assessment for new development projects. An economic assessment takes account whether there are sufficient benefits from the project to more than fully off-set any costs or losses attributable to a project. However, an

economic assessment does not specify where the costs and benefits from a project fall or who in the community will be the beneficiaries or losers. Similarly, financial assessment considers the viability of the project from the perspective of the commercial developer.

Accordingly, an analysis of the social impacts of projects, separate to the economic assessment, may be needed for decision makers to assess the desirability or otherwise of projects, particularly where CSO funding is being considered by Government.

An analysis of the social impacts of a project would be undertaken where it is likely that the project will:

- result in significant distributional shifts in costs and benefits between and within communities
- significantly affect employment, trade, private sector or other levels of government etc;
- cause disproportionate disadvantage to a particular sector;
- provoke appreciable community concern; or
- require changes in government policy and direction.

An analysis of the social impacts of a project should:

- identify any significant social issues or opportunities associated with the project;
- outline the extent to which they may impact on the project; and
- develop strategies and options to deal with these issues.

Risks and uncertainties associated with the analysis, in particular with the assumptions underlying the analysis, should be outlined to assist in the overall assessment of project risk.

Issues identified in this analysis should be stated clearly in the evaluation report so that Government is fully aware of any policy implications or community reactions to the project proposal.

The extent and nature of the social analysis of a project proposal should be commensurate with the importance of the project and of the social issues involved.

Project identification

4. Project identification

The Draft Discussion Paper *Improved Planning for the Supply of Water in Queensland* (October 1999) outlined proposals for the role of the Queensland Government in the new water industry framework. The Queensland Government will be responsible for putting in place a transparent and accountable process for granting new water allocations. It will also be responsible for developing and updating a State Water Plan.

The Queensland Government will also be responsible for ensuring coordinated planning, identification and preservation of future major water storage sites. It will arrange for the collection of water resource information for all agencies so that there is more effective regional and catchment planning in the future. Through these mechanisms, the Queensland Government will define the framework for the future development of the State's water resources and facilitate sustainable development.

These guidelines focus specifically on the initiation of new water infrastructure development from financial and economic perspective, and outline the criteria against which the Government would consider the provision of a community service obligation (CSO) to facilitate a specified project outcome.

Diagram 1 (*page 15*) outlines the steps involved in the project identification, financial and economic evaluation of a project and the selection of a preferred supplier for the delivery of new water infrastructure.

The financial and economic project evaluation processes are necessary inputs to the overall project planning and assessment process which involves:

- (i) Project identification;
- (ii) Preliminary assessment;
- (iii) Selection of competitive process or exclusive mandate; and
- (iv) Development of a project proposal.

4.1 Project identification

The first step is to identify the potential project and, specifically, the services to be delivered by the project. That is, the desired project outcome. Projects to meet specified outcomes may be identified by either the Queensland Government or by a commercial water service provider.

As outlined in the Draft Discussion Paper *Improved Planning for the Supply of Water in Queensland*, commercial water project developers⁸ may identify new water infrastructure projects to meet an identified market opportunity for the development of new water supply or accelerated development of infrastructure identified under a Water Resource Plan.

The Queensland Government in its role as strategic planner may identify opportunities for the commercial development of new water infrastructure following the completion of a Water Resource Plan (eg. the proposed Glendower Dam as a future water supply for South East Queensland). In certain circumstances the Queensland Government may identify a water infrastructure project to meet a defined social or economic objective, with identification of anticipated CSO arrangements.

⁸ Includes GOCs, statutory authorities, private companies, other

4.2 Preliminary assessment

Regardless of whether a project has been identified by the Queensland Government or a commercial water service provider, the project must demonstrate that it satisfies in a timely manner a genuine need and that it accords with the State's economic, social and environmental outcomes.

Once a project has been proposed the Queensland Government would complete a preliminary assessment regarding the sustainability, viability and desirability of the project before proceeding further. It is critical to establish that the project is both economically viable and ecologically sustainable at an early stage. It is also essential that at an early stage in the project development there be an assessment of the demand/need for the project and to confirm that the project will be affordable both to water users, and to Government, in the event that Government considers the provision of a CSO from the project.

Preliminary resource management, environmental, financial and economic assessments would be completed prior to the Queensland Government approaching the market for expressions of interest for development and the provision of services. This is important for four reasons.

- (i) To ascertain whether the proposed project is likely to meet resource management and environmental sustainability criteria.
- (ii) For the Government to establish whether there is opportunity for the project to be delivered without Government financial assistance. If not, consideration should be given to the value the Government is prepared to place on the development of the project to meet a specified outcome. Estimated CSO's for the project should be given preliminary consideration by the Cabinet Budget Review Committee (CBRC) at this stage.
- (iii) To ensure that if Government proceeds to a stage of calling for expressions of interest for the development of the project, there is some certainty for potential project developers that the project is likely to proceed. The costs for commercial developers in preparing and

submitting tenders can be significant and tenders should only be called where there is relative certainty that the project will be economically and ecologically sustainable.

- (iv) Seeking expressions of interest prior to preliminary assessment may raise expectations in the community that the project will go ahead, even through it may subsequently prove not to be viable.

Completion of a preliminary assessment will provide an indication as to whether the project should be pursued further or abandoned, that is whether the anticipated project is likely to meet the economic and ecological viability criteria. The scale of the preliminary assessments should reflect the scale of the anticipated project. The preliminary assessment should include a "without project" option (often referred to as "do nothing" case⁹).

More detailed economic and financial assessments will be completed at a later stage as part of the IAS process.

4.3 Selection of competitive process or exclusive tender

For all projects, irrespective of whether initiated by the Queensland Government or commercial providers, the Queensland Government will need to consider whether the water infrastructure project will be delivered through a competitive process or whether a selected provider will be given an exclusive mandate for the development. *Private Sector Involvement in Public Infrastructure and Service Delivery* outlined the Queensland Government's policy position on this issue.

Unless there are valid reasons to the contrary, all new water infrastructure proposals will be carefully considered for competitive delivery. Where the Queensland Government elects to use a competitive process for selection of a preferred developer, the Queensland Government will ensure competitive neutrality for all bidders in a competitive process, thus providing non-discrimination and equality of treatment.

⁹ The description "do nothing" or "without case" can often be misleading as it is not necessarily the status quo but should include future costs/benefits that would have been incurred if the project did not proceed.

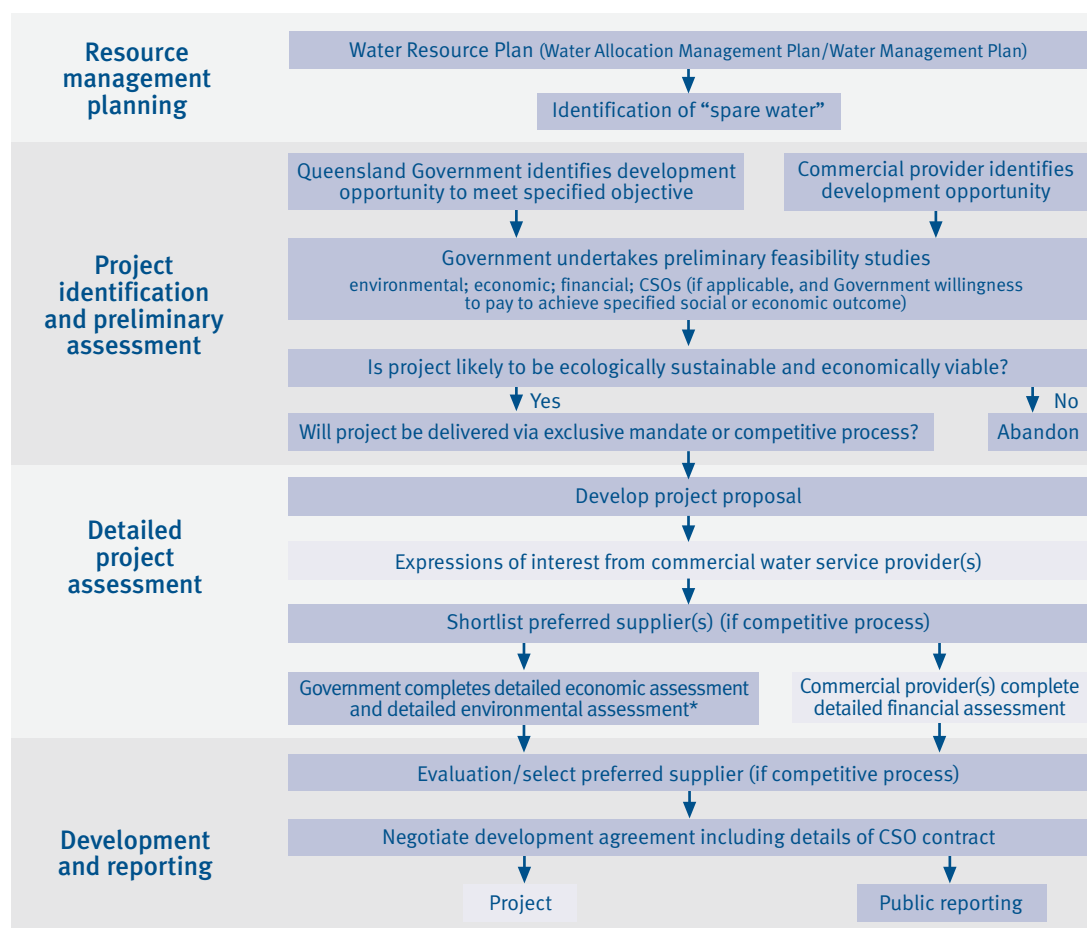
4.4 Development of project proposal

Under either a competitive process or an exclusive mandate, the Queensland Government will consider all realistic options to satisfy the project criteria at an early stage in the planning process. Projects will need to be specified in such a way that encourages innovative options from commercial water service providers.

Options to meet a specified outcome could include:

- refurbishing existing facilities;
- various options in terms of timing and scale to meet demand;
- various locations or site options;
- alternative infrastructure options (eg. project objectives might be met by dam, smaller weirs, off-stream storage, water recycling etc).

Diagram 1: Evaluation of Water Infrastructure Investments



* The economic and environmental evaluation may be completed by the Government or by the commercial developer(s). Where a commercial provider completes evaluations, the results must be audited and approved by the Government.

Financial analysis

5. Financial analysis

Financial analysis assesses the commercial viability (profitability) of the water project from the perspective of the **project developer**. The financial assessment will measure the level and timing of cost recovery estimated from the project and the projected return on the investment.

Financial analysis should be completed by the prospective project developer(s).

In the event that a project developer seeks funding from the Queensland Government in the form of a CSO, the project developer would need to demonstrate the extent to which the project is not financially viable¹⁰ and the extent of the CSO funding sought. Any requests for CSO funding would be considered in the context of the principles outlined in Section 8 (*page 22*). Accordingly, the financial assessment should be suitably robust to withstand independent audit and scrutiny.

5.1 Calculate expected project income

In identifying project income, only the financial benefits attributable to the **project developer** should be considered. That is direct income that is anticipated to be collected by the project developer over the life of the project.

In this respect, the financial analysis should include the following:

- estimated volume of water available for sale (high reliability and medium reliability);
- estimated timing and magnitude of demand for water¹¹ (high reliability and medium reliability);
- estimated price for water (upfront charges and annual charges for both high reliability and medium reliability water);
- estimated total revenue (including upfront and annual);
- residual value of infrastructure; if any.

The financial analysis should not initially include any allowance for estimated income from community service obligations (CSOs). That is,

the first stage commercial assessment should be conducted in the absence of any financial assistance from the Queensland Government.

5.2 Calculate expected project costs

The financial analysis should include only the direct costs to the **project developer** of undertaking the particular project. The stream of costs should cover the developer's planned investment period for the proposed water project.

Costs that should be considered would include:

- capital costs of developing the water infrastructure (including the costs of project investigation, design, construction, approvals, land acquisition etc);
- project financing costs (associated with the developer);
- ongoing costs of operating and maintaining the infrastructure (including direct/specific costs of ongoing compliance with the resource management regulatory framework, actual refurbishment costs over the life of the project);
- administration and overheads;
- taxation costs;
- other.

The degree of precision in identifying costs will vary with the significance of the project, the availability of data and the financial risk associated with the project.

5.3 Calculation of financial viability

The financial analysis measures whether the present value of revenues and costs is positive or negative. Ideally values in a financial assessment should be expressed in nominal terms, given that the recommended discount rate (*see page 17*) is expressed in nominal terms. Care should be taken to ensure that a combination of real and nominal values are not included in the same analysis. If a financial assessment is undertaken using real values, the discount rate will need to be adjusted accordingly.

The discount rate recommended for financial

¹⁰ Financial viability is defined as meeting all costs of the project and earning a commercial return on the capital invested.

¹¹ To estimate the likely price for water, consideration could be given to water prices being paid under similar conditions, with some consideration of the anticipated ability to pay by water users, or through the use of a demand survey or other methodology. All results should be carefully scrutinised.

evaluation of water infrastructure is the project developer’s Weighted Average Cost of Capital (WACC). The WACC should be expressed as being either before or after tax, depending on whether tax has been included in the assessment.

In calculating financial viability, commercial businesses would need to take account of, amongst other things, the various options for financing the project, taxation liabilities associated with various options, and an appropriate hurdle rate for new investments.

Financial analysis should include projected profit and loss, balance sheets and cash flows statements for the developers planned investment period, if not the life of the project. Where the developer’s planned investment period is shorter than the life of the project, the financial assessment should take account of the residual value of the project at the end of the planned investment period.

Table 4: Test for financial viability

If $NPV_{(financial)} > 0$	Project can be completed on a fully commercial basis. Economic assessment required if water allocation or site for the project is strategically significant.
If $NPV_{(financial)} < 0$ and projected revenues at least cover the direct cash costs of providing infrastructure	Financial assessment shows that the project is not financially viable ie. project has a negative NPV. However, if project income at least covers the ARMCANZ Lower Bound, then an economic assessment of the project may be completed as outlined in Section 6. However, the project should only progress to the economic assessment stage if the project meets a clearly defined Government outcome.
If $NPV_{(financial)} < 0$ and income does not cover direct cash costs of providing infrastructure.	If financial viability analysis shows that the project would not satisfy the ARMCANZ Lower Bound requirements the project should be redesigned or abandoned. Only under exceptional circumstances involving a policy decision by Government should consideration be given to progressing water infrastructure projects that cannot cover at least the ARMCANZ Lower Bound.

5.4 Assessment of the project’s financial viability

The financial viability assessment is completed for two reasons.

- 1) To determine whether the proposed water infrastructure investment is commercially viable in its own right. In this regard, the analysis should demonstrate that the project can be developed by a commercial provider with no financial input from the Queensland Government.
- 2) If the project is not financially viable (ie. expected income does not cover costs and provide a commercial return on investment as required by the developer) the financial viability assessment should clearly indicate the level of anticipated cost recovery from the project.

To be considered as being eligible for Government CSOs, all new projects should at least be able to cover the direct costs of providing the service (ie. operational, maintenance and administrative costs, asset consumption (including future asset refurbishment/ replacement), externalities, taxes or tax equivalents (TERs), interest costs associated with the developer, and a dividend (if any). That is, at least the lower price bound as defined by ARMCANZ.

The results of the financial assessment should be subjected to a sensitivity assessment as outlined in Section 7 (page 21).

Economic analysis

6. Economic analysis

Economic analysis assesses the overall impact of the water project on the regional or State economy. Benefit-cost analysis is used to identify the economic costs and benefits of a project, calculated in monetary terms, (using imputed values if necessary), to generate a net present value (NPV) for the project. Projects are ranked as candidates for development according to their NPV.

To the extent that an economic assessment considers the broader impacts of a project on the economy as a whole, the Government, rather than a commercial provider, should generally complete the assessment. If the commercial provider completes the assessment, the results will need to be audited and approved by Government. This will allow the Government to make a judgement regarding the economic viability and respective ranking of the project as a candidate for development. Given this information the Government can make a judgement regarding any CSOs free from the conflicting objectives of weighing the financial viability of the project.

Ideally values in an economic assessment should be expressed in real terms. The discount rate should also be expressed in real terms. However, given that the recommended discount rate below is nominal, it will need to be adjusted to real terms. Care should be taken to ensure that a combination of real and nominal values are not included in the same analysis.

More detailed economic assessment requirements are contained in the *Queensland Treasury Project Evaluation Guidelines (March 1997)*. These guidelines outline specific considerations that might be included when assessing economic viability of water infrastructure projects.

The level of detail required in the economic cost benefit assessment should have regard to the significance of the project. The assessment should be suitably robust to withstand external review.

6.1 Identification of benefits

Benefits should be valued in monetary terms wherever possible, eg. by using actual or estimated market values. In some instances it may be necessary to use notional or imputed values. However, in some cases valuation may be excessively expensive and the results produced may be uncertain. In such situations discretion should be used to determine the worth of undertaking such valuations.

In identifying project benefits, consideration should be given to:

- avoided costs – costs which are unavoidable if nothing is done, but may be avoided if action is taken (for example, costs if a township experiences regular flooding);
- cost savings – verifiable reductions in existing levels of expenditure if a project proceeds (for example, reduced user pumping costs through new or extended distributional channels);
- benefits – benefits which result directly or indirectly from the project (for example, increases in net farm produce as a result of the project). Changes in net benefits which would have occurred regardless of the project must be identified and included as a cost against the project (*Refer 6.2 Identification of costs – page 19*);
- benefits to consumers, and the broader community as a whole (externalities) (for example, recreational benefits);
- the residual value of the project (if any).

Multipliers, which measure the secondary or indirect benefits of a project on the economy, should not be included as benefits in an economic analysis. However, multipliers may be identified and reported as part of separate regional impact or distributional impact analyses for consideration by Government (*see Section 3.4 – page 12*).

6.2 Identification of costs

Evaluations should be based on the additional cost to the economy of undertaking the particular project. Costs which would have been incurred anyway should be excluded. The stream of costs should cover the life of the proposed water project. Costs that should be considered include:

- Capital costs of the water infrastructure project plus capital costs incurred by water users and other direct beneficiaries;
- Project operating, maintenance, administration and refurbishment costs (including overheads) of the developer and all associated stakeholders;
- Loss of economic income when compared to the “without case”; and
- Environmental impacts (to the extent that a monetary value can be approximated) and costs of implementing environmental management plans, resource operating licences etc.

The above list is not exhaustive and will vary depending on the characteristics of the individual infrastructure project.

The degree of accuracy in identifying costs will vary with the significance of the project and the availability of data. Assumptions underlying all capital and recurrent cost estimates should be made explicit in the evaluation, including assumptions regarding, labour costs and energy costs.

It is important that estimates of costs be undertaken on a consistent basis to enable meaningful comparisons to be made between competing options and projects. All valuations of costs should be on the same basis as the valuation of benefits.

6.3 Calculation of net benefits

As with the financial analysis, the concept of net present value (NPV) is used to facilitate comparisons between projects. For cost benefit analysis, all future costs and benefits should be expressed in present value terms.

Calculation of present value requires the use of a discount rate. Discounting takes account of the fact that the initial investment costs are borne up front, while benefits and operating costs, mainten-

ance costs and similar will extend into the future. Discounting reflects the concept of the time preference of money which is relevant even in the absence of inflation.

The discount rate recommended for economic evaluation of water infrastructure is a project specific discount rate estimated using the Capital Asset Pricing Model (CAPM).

Use of CAPM to determine the discount rate varies with the *Queensland Treasury Project Evaluation Guidelines* to the extent that the *Project Evaluation Guidelines* recommend a general government discount rate rather than a project specific discount rate. The *Project Evaluation Guidelines* are however designed predominantly for the general budget sector where a project specific discount rate is unlikely to be readily calculated.

The use of CAPM as the method of determining the project specific discount rate for economic evaluation of water infrastructure is recommended as it takes into account the market risk inherent in the development of individual water projects, reflecting the demand for water will be impacted on by a range of variable such as exchange rates, world commodity prices and the cyclical economy and business conditions. The CAPM should not take account of issues of unique risk such as weather conditions or changes to the regulatory framework. Such issues are appropriately dealt with as part of a sensitivity assessment.

Ordinarily, the time period for an economic assessment should cover the expected life of the asset to be created so that immediate costs and benefits, as well as those that occur at varying times in the future, are included in the assessment. To the extent that water infrastructure projects will have significantly long lives (eg. potentially 150 years), use of a shorter time horizon for economic assessment may be more appropriate. The appropriate time period for a benefit-cost analysis depends on the magnitude of the discount rate. Where the discount rate is above 5.0% there is little justification for extending the period beyond 30 years. However, it is important to include a residual value for project assets where the life of the project exceeds the planning period.

6.4 Assessment of the project's economic viability

If the economic NPV of the water infrastructure project is positive, then the infrastructure project would be considered to be economically viable. New water infrastructure will only be developed where it is demonstrated to be economically viable.

Table 5: Tests for economic viability

If $NPV_{(economic)} > 0$	If the project is economically viable but not financially viable (ie. $NPV_{(financial)} < 0$), consideration may be given to whether there is justification for a CSO provided the financial analysis indicates the ARMCANZ lower bound requirement is satisfied. Consideration of CSOs is outlined in Section 8.
If $NPV_{(economic)} < 0$	<p>If the project is neither financially viable nor economically viable the project should be re-engineered or abandoned.</p> <p>If the project is financially viable but not economically viable the project, the project should be abandoned.</p>

The results of the economic assessment should be subjected to a sensitivity assessment as outlined in Section 7 (*page 21*).

Sensitivity analysis

7. Sensitivity analysis

There will always be some degree of risk and uncertainty surrounding the outcome of a financial or economic evaluation. To estimate the risks associated with this uncertainty, and to determine the sensitivity to adverse movements in particular variables, the projected outcomes of both the financial and economic analyses should be tested under a range of different scenarios and can be compared to the “base case” analysis.

An assessment should be made of a realistic range for all key variables. NPV calculations should be performed using different combinations of worst and best case scenarios. The analyses should identify the minimum set of changes in key assumptions that would render the project non-commercial or uneconomic.

Analytical techniques for assessing risk and uncertainty include:

- *Sensitivity analysis*: this illustrates what would happen if a small number of the key variables changed and how these changes would affect the overall cost and benefits/revenues of the project. Particular attention should be given the sensitivity analysis in situations where significant externalities have been identified, but not quantified, and the results of the economic and/or financial assessment is marginal.
- *Risk analysis*: this can be used where there are a limited number of key variables. Risk analysis assigns probabilities to the key variables, weights the key values by their probabilities of occurrence and uses these data to calculate the net present value of the project.
- *Scenario planning*: this approach is used if there are many assumptions in the project evaluation, each of which would vary. It is a process of looking at various possible situations or future scenarios. Scenario planning usually focuses on long term rather than short term horizons and is used to illustrate a range of technical, economic, social and political uncertainties which may affect the success of a project.

A clear statement of the assumptions used in the analyses and the reasons for choosing them must be given so that the decision maker is aware of the underlying assumptions.

While both optimistic and pessimistic scenarios should be presented, particular attention should be given to the development of pessimistic or conservative scenarios to test the degree of robustness of the “base case”.

CSO Analysis

8. CSO Analysis (if applicable)

Under the COAG Water Resource Policy, investment in new water infrastructure is only to occur where it can be demonstrated to be both ecologically sustainable and economically viable. Where service delivers are required to provide water at less than full cost, the provision of any CSOs must be made transparent.

Provision of CSOs for water infrastructure investment in Queensland will be in accordance with the principles in the Queensland Government's *Community Service Obligations: A Policy Framework*. The Queensland Government will not provide CSOs to proposed water infrastructure investments where they are not economically viable.

Only in exceptional circumstances would CSOs be considered where water prices are unable to cover at least the ARMCANZ lower bound requirements. That is, the costs necessary to assure the ongoing financial viability of the new water infrastructure investment.

To qualify as a CSO under *Community Service Obligations: A Policy Framework* an activity must be purchasing a Government specified outcome and satisfy all of the following three key elements. That is must be:

- (i) a non-commercial product or service ie. CSO activity must be one that would otherwise not be undertaken or would be priced differently, by commercial entities (based on the entity earning a normal commercial profit level and the product or service being delivered on a cost-effective basis).
- (ii) purchased by Government on behalf of the community ie. a CSO needs to be purchased by the Government to achieve a specific social or economic objective established by Government.
- (iii) purchased from a commercial entity.

The following section describes the practical application of the *Community Service Obligations: A Policy Framework* to water infrastructure investment, however, these guidelines are not intended to be a substitute for following the necessary steps as required by the CSO Framework.

8.1 Identification of candidate CSOs

To qualify as a candidate CSO an activity must:

1. be consistent with a Department's Cabinet Budget Review Committee (CBRC) approved outcomes and funding priorities;
2. be considered in the context of other Departments' outputs; and
3. not be capable of being delivered on a commercial basis.

Section 4 (Project Identification) will assist the relevant Department in considering whether the objectives of the project meet a clearly defined outcome of Government. Completion of Section 5 (Financial Assessment) will have indicated whether the project can be undertaken on a commercial basis.

8.2 Specification of candidate CSOs

Candidate CSOs should be broadly defined in terms of a number of output characteristics including, for example:

- location (ie. specific region or area);
- target industry/community group;
- service quality and quantity; and
- period and timing of service.

As indicated above, only in exceptional circumstances would a CSO be considered for a project where water prices were below the minimum level necessary to assure the project's minimum ongoing financial viability (ie. water prices cover ARMCANZ lower bound costs).

Specification of the CSO should include the likely cost of delivering the CSO and the likely funding that would be negotiated by the commercial entity that delivers the CSO.

The Department considering the CSO should identify, at an early stage in the process, the source of funding that will be used to purchase the proposed CSO services. Importantly, the nomination of various projects as candidates for CSOs does not necessarily mean that the CSOs will be approved or that the Departments will receive additional funds from the Budget. Approval of funding is to be sought as part of usual Budget deliberations having regard to the CBRC's assessment of Government outcomes and priorities.

The Department proposing the CSO must inform the Government of potential CSO funding requirements prior to the project approval. This may include a staged approach whereby preliminary CSO estimates must be included as part of the submission by a Department to the Government/Cabinet Budget Review Committee (CBRC) when seeking approval to further develop the case for the project.

A Department proposing a CSO should liaise closely with central agencies and other relevant Departments throughout the process of identifying potential CSOs and negotiating and implementing CSO arrangements. In some instances, a number of Departments may be involved in the provision of CSOs from a particular water infrastructure investment.

8.3 Selection of CSO deliverer

Consideration should be given to whether a competitive tender process or some exclusive mandate arrangement will be negotiated for the delivery of the project and any associated CSO. This is discussed in greater detail in Section 4 (*page 13*). Generally, any CSO will be identified and costed as part of the competitive bidding process for new water infrastructure projects.

8.4 Negotiation of CSO contracts

All CSOs provided for water infrastructure should be clearly defined and specified in a formal agreement or contract between the commercial provider and the relevant Department.

CSO contracts negotiated with commercial providers for the delivery of outputs from water infrastructure investments would have regard to the following:

- the legitimate commercial interests of the commercial water provider;
- alignment of risks with the party best able to manage those risks;
- the price of the CSO should be based on efficient, best practice costs and be made clearly transparent.

As part of the negotiation of the CSO contract, consideration would be given to the most appropriate means of funding, whether via an upfront payment or through an annual payment for services.

Departments would need to include appropriate performance criteria in the CSO contract and undertake ongoing monitoring to ensure that Government objectives are being appropriately delivered as part of the CSO contract.

Select preferred

9. Select preferred option/supplier

Following the detailed commercial, economic and CSO analysis, the Queensland Government will select a preferred development option and supplier for the new water infrastructure investment. The Government will select the option that best meets the outputs required from the project. The outcome selected may not necessarily be the lowest cost option but would be the option that provides the greatest value for money over the whole of the life of the infrastructure asset.

If a private sector or public private partnership delivery of the infrastructure is being considered, then the Government will comprehensively undertake a rigorous risk

analysis of the entire project comprising all elements of the infrastructure asset's implementation, operation and maintenance. This would be undertaken to identify the optimal coherent risk transfer to the parties best able to manage or mitigate such risk. Contractual arrangements would be used to define the respective risks to be borne by the commercial provider and Government.

If the project does not meet the necessary financial or economic parameters, or the funding sought by a commercial provider is considered to outweigh the expected benefits of the CSO to the community, then the preferred option may be not to proceed with the project.

Public reporting

10. Public reporting

The economic assessment report (and where appropriate financial assessment¹²) of new water infrastructure investments should be made public. The economic assessment report should clearly indicate:

- the costs and benefits of the most suitable options;
- the results of the analyses of these options;
- details of the sensitivity tests used; and
- the identification and justification of the assumptions used.

Consideration should be given to the timing of the release of reports to ensure that information that could jeopardise the commercial success of the project is not made public prematurely.

Any CSOs provided for new water infrastructure investments will be made transparent. The economic evaluation report should include a clear statement of the Government's justification for the CSO and the Government funding provided for the provision of the CSO.

¹² Subject to any commercial-in-confidence constraints

Reference material

General

Compendium of National Competition Policy Agreements
National Competition Council, January 1997

Improving the Management and Allocation of Water in Queensland (Draft)
Queensland Water Reform Unit, November 1998

Water Act 2000

Improved Planning for the Supply of Water in Queensland (Draft)
Queensland Water Reform Unit, October 1999

Handbook of Cost/Benefit Analysis
Commonwealth Department of Finance, Australian Government Publication Service, 1991

Large Water Resource Developments – An Integrated Assessment Project
Report prepared by the Centre for Water Policy Research, University of New England and the Australian Centre for Tropical Research, James Cook University for the National Land and Water Resources Audit on behalf of the Commonwealth Government, November 1999.

Guidelines for Managing Externalities: Restoring the Balance (Draft)
High Level Working Group on Water, 2000

Queensland Treasury publications

Project Evaluation Guidelines (March 1997)

Private Sector Involvement in Public Infrastructure and Service Delivery (September 1997)

Managing for Outcomes in Queensland (July 1997)

Community Service Obligations: A Policy Framework (March 1999)

Glossary

ARMCANZ	The Agricultural and Resource Management Council of Australian and New Zealand.
ARMCANZ Upper Bound for water pricing	The ARMCANZ Upper Bound prices are defined as the recovery of not more than the operational, maintenance and administration costs, externalities, taxes or (tax equivalents) TERs, provision of asset consumption and cost of capital, the latter being calculated by WACC. (Externalities are defined as attributable and incurred environmental and resource management costs).
ARMCANZ Lower Bound for water pricing	The ARMCANZ Lower Bound prices are defined as not less than the operational, maintenance and administrative costs, externalities, taxes or tax equivalents (TERs), dividends (if any) and make provision for future asset refurbishment/replacement. Dividends should be set to a level that reflects commercial realities and simulates a competitive market outcome.
Capital Asset Pricing Model (CAPM)	A methodology which provides a means of estimating the risk of an asset (or group of assets) for the purposes of determining a rate of return for that asset (or group of assets).
Community Service Obligations	Activities which would not normally be undertaken by a commercial entity (usually because they are not profitable) and are provided by a commercial entity under an agreement with Government.
Discounted Cash Flow	The technique for appraising projects based on the idea of ‘discounting’ future costs and benefits to their present values.
Distributional Impacts	(See Transfer Impacts)
Ecologically sustainable	Meets the principles of “Ecologically Sustainable Development”
Ecologically Sustainable Development	Principles of ecologically sustainable development are: <ul style="list-style-type: none">(a) decision-making processes should effectively integrate both long- term and short-term economic, environmental, social and equitable considerations;(b) if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;(c) the present generation should ensure the health, diversity and productivity of the environmental is maintained or enhanced for the benefit of future generations;(d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making;(e) recognition of the need to develop a strong , growing and diversified economy that can enhance the capacity for environmental protection; and(f) decisions and actions should provide for broad community involvement in issues affecting them.

Glossary

Economic viability	Evaluation of whether the gains from a project outweigh the costs of a project. Economic evaluation is undertaken from the perspective of the economy as a whole and does not differentiate between winners and losers.
Externality	A benefit (positive externality) or cost (negative externality) borne by a third party (including the environment) who cannot pay or be compensated for the benefit or cost through the normal market mechanism.
Financial viability	A project is financially viable if the revenues from the project cover the project costs and earn a commercial return on investment. Financial evaluation is considered from the perspective of the project developer.
Hurdle Rate	The rate of return which is required to be demonstrated to be able to be met before a capital investment project should be commenced; ie. it is the level of profitability which the proposed project is required to exceed (or “hurdled”) to be accepted for development.
Internal Rate of Return	The discount rate at which a project has a net present value of zero.
Managing for Outcomes	An integrated approach to planning, budgeting and performance monitoring which aims to: promote quality, client responsive services; maximise value for money in service delivery and improve resource allocation decision making.
Net Present Value	The discounted value of the expected benefits of a project, less the discounted value of the expected costs.
Outcomes	The effects on or consequences for, the community of the services and products (outputs) purchased by the Government.
Outputs	Discrete services or products (including policy advice) produced by Departments and delivered to the Government, for external customers or consumers.
Transfer Impacts	Payments which redistribute income but which do not reflect either the value of a good to a consumer or the costs of its supply. As such they are excluded from a cost-benefit analysis, but are included in a social assessment of the project.
Water Allocation and Management Plan (WAMP)	A basin-wide planning process involving the identification or environmental water requirements, the water requirements of existing licensees and potentially any spare water, presently unallocated which would be available for future use.
Water Release Plan (WRP)	A catchment or sub-catchment planning process based on the outcomes of a WAMP or WMP, which details strategies for the release (or reservation) of water available for allocation, including, where appropriate, details of quantity, location and timing.
Weighted Average Cost of Capital (WACC)	The method for calculating the cost of capital of a business, which comprises both the cost of debt and the cost of equity, weighted according to their respective significance in the organisation’s capital structure.